

TECH CENTER 1600/2900

SEP 13 2001

RECEIVED

652

#10
L.P.

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/531,266

DATE: 08/02/2001

TIME: 17:26:26

Input Set : A:\Ma258100.app

Output Set: N:\CRF3\08022001\I531266.raw

ENTERED

```

3 <110> APPLICANT: DUNICAN, L.K.
4     MCCORMACK, ASHLING
5     STAPELTON, CLIONA
6     BURKE, KEVIN
7     MOCKEL, BETTINA
9 <120> TITLE OF INVENTION: NEW NUCLEOTIDE SEQUENCES WHICH CODE FOR THE TAL GENE
11 <130> FILE REFERENCE: MAS/21123/258100
13 <140> CURRENT APPLICATION NUMBER: 09/531,266
14 <141> CURRENT FILING DATE: 2000-03-20
16 <150> PRIOR APPLICATION NUMBER: 60/142,915
17 <151> PRIOR FILING DATE: 1999-07-09
19 <160> NUMBER OF SEQ ID NOS: 6
21 <170> SOFTWARE: PatentIn Ver. 2.1
23 <210> SEQ ID NO: 1
24 <211> LENGTH: 6995
25 <212> TYPE: DNA
26 <213> ORGANISM: Corynebacterium glutamicum
28 <220> FEATURE:
29 <221> NAME/KEY: CDS
30 <222> LOCATION: (2471)..(3550)
31 <223> OTHER INFORMATION: tal-Gen
33 <400> SEQUENCE: 1
34 cacatttgaa ccacagttgg ttataaaatg ggttcaacat cactatggtt agaggtggtg 60
36 acgggtcaga ttaagcaaaag actactttcg gggtagatca cctttgccaa atttgaacca 120
38 attaacctaa gtcgtagatc tgatcatcgg atctaacgaa aacgaaccaa aactttggtc 180
40 ccggtttaac ccaggaagga ttgaccacct tgacgctgtc acctgaactt caggcgctca 240
42 ctgtacgcaa ttaccctctt gatttggtcg atgtggacac caaggctgta gacactgttc 300
44 gtgtcctcgc tgcagacgct gtagaaaact gtggctccgg ccaccaggc accgcaatga 360
46 gcctggctcc ccttgcatat accttgatcc agcgggttat gaacgtagat ccacaggaca 420
48 ccaactgggc aggcggtgac cgcttcgttc tttcttggtg cactcctctt ttgaccagt 480
50 acatccagct ttacttggtt ggattcggcc ttgagatgga tgacctgaag gctctgcgca 540
52 cctgggattc cttgacccca ggacacctg agtacgcga caccaagggc gttgagatca 600
54 ccactggccc tcttgggccag ggtcttgcat ctgcagttgg tatggccatg gctgctcgtc 660
56 gtgagcgtgg cctattcgac ccaaccgctg ctgaggcgga atccccattc gaccaccaca 720
58 tctacgtcat tgcttctgat ggtgacctgc aggaagggtg cacctctgag gcatcctcca 780
60 tcgctggcac ccagcagctg ggcaacctca tcgtgttctg ggatgacaac cgcattctca 840
62 tcgaagacaa cactgagatc gctttcaacg aggacgttgt tgctcgttac aaggcttacg 900
64 gctggcagac cattgaggtt gaggctggcg aggacgttgc agcaatcgaa gctgcagttg 960
66 ctgaggctaa gaaggacacc aagcgacctt ccttcacccg cgttcgcacc atcatcggtc 1020
68 tccagctccc aactatgatg aacacgggtg ctgtgcacgg tgctgctctt ggcgcagctg 1080
70 aggttgacgc aaccaagact gagcttggtt togatcctga ggctcacttc gcgatcgacg 1140
72 atgaggttat cgctcacacc cgctccctcg cagagcgcgc tgcacagaag aaggctgcat 1200
74 ggcaggtcaa gttcgatgag tgggcagctg ccaaccctga gaacaaggct ctgttcgatc 1260
76 gcctgaactc ccgtgagctt ccagcgggct acgctgacga gctcccaaca tgggatgcag 1320
78 atgagaaggc cgctgcaact cgtaaggctt ccgaggctgc acttcaggca ctgggcaaga 1380
80 cccttctga gctgtggggc ggttcogctg acctcgagg ttccaacaac accgtgatca 1440
82 agggctcccc ttcttcggc cctgagtcca tctccaccga gacctggtct gctgagcctt 1500

```

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/531,266

DATE: 08/02/2001

TIME: 17:26:26

Input Set : A:\Ma258100.app

Output Set: N:\CRF3\08022001\I531266.raw

```

84 acggccgtaa cctgcacttc ggtatcogtg agcacgctat gggatccatc ctcaacggca 1560
86 ttccctcca cgggtggcacc cgcccatacg gcggaacctt cctcatcttc tccgactaca 1620
88 tgcgtcctgc agttcgtctt gcagctctca tggagaccga cgcttactac gtctggaccc 1680
90 acgactccat cgggtctgggc gaagatggcc caacccacca gcctgttgaa accttggtcg 1740
92 cactgcgcgc catcccaggt ctgtccgtcc tgcgtcctgc agatgcgaac gagaccgccc 1800
94 aggcttgggc tgcagcactt gagtacaagg aaggccctaa gggctcttgca ctgaccgccc 1860
96 agaacgttcc tgttctggaa ggcaccaagg agaaggctgc tgaaggcggt cgccgcggtg 1920
98 gctacgtcct ggttgagggt tccaaggaaa cccagatgt gatcctcatg ggctccggct 1980
100 ccgaggttca gcttgagtt aacgctgcca aggctctgga agctgagggc gttgcagctc 2040
102 gcgttgtttc cgttccttgc atggattggt tccaggagca ggacgcagag tacatcgagt 2100
104 ccgttctgcc tgcagctgtg accgctcgtg tgtctgttga agctggcatc gcaatgcctt 2160
106 ggtaccgctt cttgggcacc cagggccgtg ctgtctccct tgagcacttc ggtgcttctg 2220
108 cggattacca gacctgttt gagaagttcg gcacaccac cgatgcagtc gtggcagcgg 2280
110 ccaaggactc cattaacggt taattgcctt gctgttttta gcttcaaccc ggggcaatat 2340
112 gattctccgg aattttattg ccccgggttg ttgttgtaa tcggtacaaa gggctttaag 2400
114 cacatccctt acttgctgc tctccttgag cacagttcaa gaacaattct ttttaaggaaa 2460
116 atttagtttc atg tct cac att gat gat ctt gca cag ctcggc act tcc 2509
117 Met Ser His Ile Asp Asp Leu Ala Gln Leu Gly Thr Ser
118      1          5          10
120 act tgg ctc gac gac ctc tcc cgc gag cgc att act tcc ggc aat ctc 2557
121 Thr Trp Leu Asp Asp Leu Ser Arg Glu Arg Ile Thr Ser Gly Asn Leu
122      15          20          25
124 agc cag gtt att gag gaa aag tct gta gtc ggt gtc acc acc aac cca 2605
125 Ser Gln Val Ile Glu Glu Lys Ser Val Val Gly Val Thr Thr Asn Pro
126      30          35          40          45
128 gct att ttc gca gca gca atg tcc aag ggc gat tcc tac gac gct cag 2653
129 Ala Ile Phe Ala Ala Ala Met Ser Lys Gly Asp Ser Tyr Asp Ala Gln
130      50          55          60
132 atc gca gag ctc aag gcc gct ggc gca tct gtt gac cag gct gtt tac 2701
133 Ile Ala Glu Leu Lys Ala Ala Gly Ala Ser Val Asp Gln Ala Val Tyr
134      65          70          75
136 gcc atg agc atc gac gac gtt cgc aat gct tgt gat ctg ttc acc ggc 2749
137 Ala Met Ser Ile Asp Asp Val Arg Asn Ala Cys Asp Leu Phe Thr Gly
138      80          85          90
140 atc ttc gag tcc tcc aac ggc tac gac ggc cgc gtg tcc atc gag gtt 2797
141 Ile Phe Glu Ser Ser Asn Gly Tyr Asp Gly Arg Val Ser Ile Glu Val
142      95          100          105
144 gac cca cgt atc tct gct gac cgc gac gca acc ctg gct cag gcc aag 2845
145 Asp Pro Arg Ile Ser Ala Asp Arg Asp Ala Thr Leu Ala Gln Ala Lys
146      110          115          120          125
148 gag ctg tgg gca aag gtt gat cgt cca aac gtc atg atc aag atc cct 2893
149 Glu Leu Trp Ala Lys Val Asp Arg Pro Asn Val Met Ile Lys Ile Pro
150      130          135          140
152 gca acc cca ggt tct ttg cca gca atc acc gac gct ttg gct gag ggc 2941
153 Ala Thr Pro Gly Ser Leu Pro Ala Ile Thr Asp Ala Leu Ala Glu Gly
154      145          150          155
156 atc agc gtt aac gtc acc ttg atc ttc tcc gtt gct cgc tac cgc gag 2989
157 Ile Ser Val Asn Val Thr Leu Ile Phe Ser Val Ala Arg Tyr Arg Glu
158      160          165          170

```

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/531,266

DATE: 08/02/2001

TIME: 17:26:26

Input Set : A:\Ma258100.app

Output Set: N:\CRF3\08022001\I531266.raw

```

160 gtc atc gct gcg ttc atc gag ggc atc aag cag gct gct gca aac ggc 3037
161 Val Ile Ala Ala Phe Ile Glu Gly Ile Lys Gln Ala Ala Ala Asn Gly
162      175      180      185
164 cac gac gtc tcc aag atc cac tct gtg gct tcc ttc ttc gtc tcc cgc 3085
165 His Asp Val Ser Lys Ile His Ser Val Ala Ser Phe Phe Val Ser Arg
166 190      195      200      205
168 gtc gac gtt gag atc gac aag cgc ctc gag gca atc gga tcc gat gag 3133
169 Val Asp Val Glu Ile Asp Lys Arg Leu Glu Ala Ile Gly Ser Asp Glu
170      210      215      220
172 gct ttg gct ctg cgc ggc aag gca ggc gtt gcc aac gct cag cgc gct 3181
173 Ala Leu Ala Leu Arg Gly Lys Ala Gly Val Ala Asn Ala Gln Arg Ala
174      225      230      235
176 tac gct gtg tac aag gag ctt ttc gac gcc gcc gag ctg cct gaa ggt 3229
177 Tyr Ala Val Tyr Lys Glu Leu Phe Asp Ala Ala Glu Leu Pro Glu Gly
178      240      245      250
180 gcc aac act cag cgc cca ctg tgg gca tcc acc ggc gtg aag aac cct 3277
181 Ala Asn Thr Gln Arg Pro Leu Trp Ala Ser Thr Gly Val Lys Asn Pro
182      255      260      265
184 gcg tac gct gca act ctt tac gtt tcc gag ctg gct ggt cca aac acc 3325
185 Ala Tyr Ala Ala Thr Leu Tyr Val Ser Glu Leu Ala Gly Pro Asn Thr
186 270      275      280      285
188 gtc aac acc atg cca gaa ggc acc atc gac gcg gtt ctg gag cag ggc 3373
189 Val Asn Thr Met Pro Glu Gly Thr Ile Asp Ala Val Leu Glu Gln Gly
190      290      295      300
192 aac ctg cac ggt gac acc ctg tcc aac tcc gcg gca gaa gct gac gct 3421
193 Asn Leu His Gly Asp Thr Leu Ser Asn Ser Ala Ala Glu Ala Asp Ala
194      305      310      315
196 gtg ttc tcc cag ctt gag gct ctg ggc gtt gac ttg gca gat gtc ttc 3469
197 Val Phe Ser Gln Leu Glu Ala Leu Gly Val Asp Leu Ala Asp Val Phe
198      320      325      330
200 cag gtc ctg gag acc gag ggt gtg gac aag ttc gtt gct tct tgg agc 3517
201 Gln Val Leu Glu Thr Glu Gly Val Asp Lys Phe Val Ala Ser Trp Ser
202      335      340      345
204 gaa ctg ctt gag tcc atg gaa gct cgc ctg aag tagaatcagc acgctgcatc 3570
205 Glu Leu Leu Glu Ser Met Glu Ala Arg Leu Lys
206 350      355      360
208 agtaacggcg acatgaaatc gaattagtgc gatottatgt ggccggttaca catctttcat 3630
210 taaagaaagg atcgtgacac taccatcgtg agcacaacaa cgacccctc cagctggaca 3690
212 aacccactgc gcgaccgcga ggataaacga ctccccgcga tcgctggccc ttccggcatg 3750
214 gtgatcttcg gtgtcactgg cgacttggct cgaaagaagc tgctccccgc catttatgat 3810
216 ctagcaaacc gcggattgct gccccagga ttctcgttgg taggttacgg ccgccgcgaa 3870
218 tgggtccaaag aagactttga aaaatacgta cgcgatgccg caagtgctgg tgctcgtacg 3930
220 gaattccgtg aaaatgtttg ggagcgcctc gccgagggtg tggaatttgt tcgcggcaac 3990
222 tttgatgatg atgcagcttt cgacaacctc gctgcaaacac tcaagcgcac cgacaaaacc 4050
224 cgcggcaccg ccggcaactg ggottactac ctgtccattc caccagattc cttcacagcg 4110
226 gtctgccacc agctggagcg ttccggcatg gctgaatcca ccgaagaagc atggcgccgc 4170
228 gtgatcatcg agaagccttt cggccacaac ctcgaaatccg cacacgagct caaccagctg 4230
230 gtcaacgcag tcttcccaga atcttctgtg ttccgcacgc accactatct gggcaaggaa 4290
232 acagttcaaa acatcctggc tctgcgtttt gctaaccagc tgtttgagcc actgtggaac 4350

```

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/531,266

DATE: 08/02/2001

TIME: 17:26:26

Input Set : A:\Ma258100.app

Output Set: N:\CRF3\08022001\I531266.raw

```

234 tccaactacg ttgaccacgt ccagatcacc atggctgaag atattggctt ggggtggacgt 4410
236 gctgggttact acgacggcat cggcgacgcc cgcgacgtca tccagaacca cctgatccag 4470
238 ctcttggctc ttggttgccat ggaagaacca atttctttcg tgccagcgca gctgcaggca 4530
240 gaaaagatca aggtgctctc tgcgacaaag ccgtgctacc cattggataa aacctccgct 4590
242 cgtgggtcagt acgctgccgg ttggcagggc tctgagttag tcaagggact tcgcaagaa 4650
244 gatggcttca accctgagtc caccactgag acttttgccg cttgtacctt agagatcacg 4710
246 tctcgtcgtc gggctgggtg gccgttctac ctgcgcaccg gtaagcgtct tggctgccgt 4770
248 gttactgaga ttgccgtggg gtttaaagac gcaccacacc agcctttcga cggcgacatg 4830
250 actgtatccc ttggccaaaa cgccatcgtg attcgcgtgc agcctgatga aggtgtgctc 4890
252 atccgcttcg gttccaagggt tccaggttct gccatggaag tccgtgacgt caacatggac 4950
254 ttctcctact cagaatcctt cactgaagaa tcacctgaag cctacgagcg cctcattttg 5010
256 gatgcgctgt tagatgaatc cagcctcttc cctaccaacg aggaagtgga actgagctgg 5070
258 aagattctgg atccaattct tgaagcatgg gatgccgatg gagaaccaga ggattacca 5130
260 gcgggtacgt ggggtccaaa gagcgtgatg gaaatgcttt ccgcacacgg tcacacctgg 5190
262 cgcaggccat aatttagggg caaaaaatga tctttgaact tccggatacc accaccacg 5250
264 aaatttccaa gaccctaact cgactgcgtg aatcgggcac ccaggtcacc accggccgag 5310
266 tgctcacctc catcgtgggtc actgactcog aaagcgtgtg cgctgcagtt accgagtcca 5370
268 ccaatgaagc ctgcgcgag caccatctc gcgtgatcat tttggtgggt ggcgataaaa 5430
270 ctgcagaaaa caaagttgac gcagaagtcc gtatcgggtg cgacgtgggt gcttcgaga 5490
272 tgatcatcat gcatctcaac ggacctgtcg ctgacaagct ccagtatgtc gtcacaccac 5550
274 tgttgcttcc tgacaccccc atcgttgctt ggtggccagg tgaatacca agaatcctt 5610
276 ccaggacccc aattggacgc atgcacaac gacgcacac tgatgctttg tacgaccgtg 5670
278 atgacgactc agaagatcgt gttgagaact atcaccacgg tgataccgac atgacgtggg 5730
280 cgcgccttac ccagtggcgg ggacttggtt cctcctcatt ggatcaccca ccacacagcg 5790
282 aaatcacttc cgtgaggtcg accggtgcaa gcggcagtac ctcggtggat ttggtgcag 5850
284 gctggttggc gcggaggtcg aaagtgcctg tgatccgcga ggtgacagat gctcccaccg 5910
286 tgccaaccga tgagtttggg actccactgc tggctatcca gcgcctggag atcgttcgca 5970
288 ccaccggctc gatcatcatc accatctatg acgtcctac ccttcaggta gagatgccgg 6030
290 aatccggcaa tgccccatcg ctggtggcta ttggtcgtcg aagtgagtc gactgcttgt 6090
292 ctgaggagct tcgccacatg gatccagatt tgggtacca gcacgcacta tccggcttgt 6150
294 ccagcgtcaa gctggaaacc gtctaaggag aaatacaaca ctatggttga tgtagtacgc 6210
296 gcacgcgata ctgaagattt ggttgacacg gctgcctcca aattcattga ggttggtgaa 6270
298 gcagcaactg ccaataatgg caccgcacag gtatgtctca ccggtgggtg cgcggcatc 6330
300 aagttgctgg aaaagctcag cgttgatgcg agtgacctt cctgggatcg cattcatgtg 6390
302 ttcttcggcg atgagcgcaa tgtccctgtc agtgattctg agtccaatga gggccaggct 6450
304 cgtgaggcac tgttggtccaa ggtttctatc cctgaagcca acattcacgg atatggtctc 6510
306 ggcgacgtag atcttgacga ggcagcccg ccttacgaag ctgtggttga tgaattcgca 6570
308 ccaaacggct ttgatcttca cctgctcggc atgggtggcg aaggccatat caactccctg 6630
310 ttccctcaca ccgatgcagt caaggaatcc tccgcaaagg tcacgcgggt gtttgattcc 6690
312 cctaagcctc cttcagagcg tgcaactcta acccttcctg cggttcactc cgcaaagcgc 6750
314 gtgtggttgc tggtttctgg tgcggagaag gctgaggcag ctgcggcgat cgtcaacggg 6810
316 gagcctgctg ttgagtggcc tgcgtctgga gctaccggat ctgaggaaac ggtattgttc 6870
318 ttggtgatg atgctgcagg aaatctctaa gcagcgccag ctctaacaag aagctttaac 6930
320 aagaagctct aacgaaaagc actaacaac taatccgggt gcgaaccttc atctgaatcg 6990
322 atgga 6995
325 <210> SEQ ID NO: 2
326 <211> LENGTH: 360
327 <212> TYPE: PRT
328 <213> ORGANISM: Corynebacterium glutamicum

```

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/531,266

DATE: 08/02/2001

TIME: 17:26:26

Input Set : A:\Ma258100.app

Output Set: N:\CRF3\08022001\I531266.raw

330 <400> SEQUENCE: 2

```

331 Met Ser His Ile Asp Asp Leu Ala Gln Leu Gly Thr Ser Thr Trp Leu
332   1      5      10      15
334 Asp Asp Leu Ser Arg Glu Arg Ile Thr Ser Gly Asn Leu Ser Gln Val
335      20      25      30
337 Ile Glu Glu Lys Ser Val Val Gly Val Thr Thr Asn Pro Ala Ile Phe
338      35      40      45
340 Ala Ala Ala Met Ser Lys Gly Asp Ser Tyr Asp Ala Gln Ile Ala Glu
341      50      55      60
343 Leu Lys Ala Ala Gly Ala Ser Val Asp Gln Ala Val Tyr Ala Met Ser
344   65      70      75      80
346 Ile Asp Asp Val Arg Asn Ala Cys Asp Leu Phe Thr Gly Ile Phe Glu
347      85      90      95
349 Ser Ser Asn Gly Tyr Asp Gly Arg Val Ser Ile Glu Val Asp Pro Arg
350      100     105     110
352 Ile Ser Ala Asp Arg Asp Ala Thr Leu Ala Gln Ala Lys Glu Leu Trp
353      115     120     125
355 Ala Lys Val Asp Arg Pro Asn Val Met Ile Lys Ile Pro Ala Thr Pro
356      130     135     140
358 Gly Ser Leu Pro Ala Ile Thr Asp Ala Leu Ala Glu Gly Ile Ser Val
359  145     150     155     160
361 Asn Val Thr Leu Ile Phe Ser Val Ala Arg Tyr Arg Glu Val Ile Ala
362      165     170     175
364 Ala Phe Ile Glu Gly Ile Lys Gln Ala Ala Ala Asn Gly His Asp Val
365      180     185     190
367 Ser Lys Ile His Ser Val Ala Ser Phe Phe Val Ser Arg Val Asp Val
368      195     200     205
370 Glu Ile Asp Lys Arg Leu Glu Ala Ile Gly Ser Asp Glu Ala Leu Ala
371      210     215     220
373 Leu Arg Gly Lys Ala Gly Val Ala Asn Ala Gln Arg Ala Tyr Ala Val
374  225     230     235     240
376 Tyr Lys Glu Leu Phe Asp Ala Ala Glu Leu Pro Glu Gly Ala Asn Thr
377      245     250     255
379 Gln Arg Pro Leu Trp Ala Ser Thr Gly Val Lys Asn Pro Ala Tyr Ala
380      260     265     270
382 Ala Thr Leu Tyr Val Ser Glu Leu Ala Gly Pro Asn Thr Val Asn Thr
383      275     280     285
385 Met Pro Glu Gly Thr Ile Asp Ala Val Leu Glu Gln Gly Asn Leu His
386      290     295     300
388 Gly Asp Thr Leu Ser Asn Ser Ala Ala Glu Ala Asp Ala Val Phe Ser
389  305     310     315     320
391 Gln Leu Glu Ala Leu Gly Val Asp Leu Ala Asp Val Phe Gln Val Leu
392      325     330     335
394 Glu Thr Glu Gly Val Asp Lys Phe Val Ala Ser Trp Ser Glu Leu Leu
395      340     345     350
397 Glu Ser Met Glu Ala Arg Leu Lys
398      355     360
402 <210> SEQ ID NO: 3
403 <211> LENGTH: 1083

```

VERIFICATION SUMMARY

PATENT APPLICATION: US/09/531,266

DATE: 08/02/2001

TIME: 17:26:27

Input Set : A:\Ma258100.app

Output Set: N:\CRF3\08022001\I531266.raw